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Indian Standard
METHOD FOR DETERMINATION OF STAPLE LENGTH OF GREASY WOOL

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METHOD FOR DETERMINATION OF STAPLE LENGTH OF GREASY WOOL

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 7 July 1972, after the draft finalized by the Physical Methods of Test Sectional Committee had been approved by the Textile Division Council.

0.2 Determination of the staple length of wool in greasy state is an important factor for evaluating the quality of wool in a lot or fleece. This standard is generally based on the testing practices being followed in the country in this field.

0.3 In the preparation of this standard, considerable assistance has been derived from ASTM Designation: D 1234-54 (Reapproved 1969) 'Method of sampling and testing staple length of grease wool' issued by the American Society for Testing and Materials.

0.4 In reporting the result of a test made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS:2-1960*.

1. SCOPE

1.1 This standard prescribes method for determination of staple length of greasy (clipped), pulled or limed wool.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Staple — A bunch or tuft of fibres which naturally cling together in a fleece.

2.2 Staple Length — The length of a staple obtained by measuring it in the unstretched condition.

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*Rules for rounding off numerical values (*revised*).

3. ATMOSPHERIC CONDITIONS FOR TESTING

3.1 The test shall be carried out in the prevailing atmospheric conditions and no pre-conditioning is required.

4. SAMPLING

4.1 The test samples of wool staples shall be so selected as to be representative of the lot. The samples drawn in accordance with the procedure laid down in the material specification or in compliance with an agreement between the buyer and the seller shall be held to be representative of the lot.

4.2 In the absence of any agreed procedure for drawing samples from the lot, the following procedure shall be adopted.

4.2.1 If the lot size exceeds 200 bales (packages) or 30 000 kg, when the lot is in loose form, divide the lot into sub-lots of size within these limits.

4.2.2 Draw, at random, samples and test specimens from the lot or sub-lots in accordance with Tables 1 and 2. Test specimens shall be drawn from different portions of the packages selected or the piles of loose wool. In the case of packages, cut small portions of the packing material at different places and draw staples from the exposed portions.

TABLE 1 SAMPLING FOR WOOL IN PACKAGES

No. of Packages	Minimum No. of Packages to be Selected	Minimum No. of Draws per Sample	Minimum No. of Draws per Lot
10 to 100	10	10	100
101 to 200	15	10	150

TABLE 2 SAMPLING FOR WOOL IN LOOSE FORM (PILES OR HEAPS PRIOR TO BALING)

Total Weight of Pile	Minimum No. of Draws per Pile
Less than 15 000 kg	100
15 000 to 30 000 kg	150

4.2.3 *Using Sampling Tool* — As it is difficult to draw samples from the core of the bales by hand, a sampling tool, as shown in Fig. 1, may be used for drawing samples from the bales. Insert the point of the tool through the burlap of the package at a proper location and thrust the shaft into the package to a desired depth. Withdraw the tool from the package by pulling it with a slight turning movement. Retain only that portion of wool which is lodged in the hook and discard any excess wool. Draw the samples in such a way that different depths of the package are sampled. For example, make the first draw from the centre of the package, the next about two-thirds of the distance from the outside of the centre, and the third about one-third the distance from the outside to the centre.

5. APPARATUS

5.1 **Velvet Board** — of adequate and convenient size, such as 50 cm^2; covered with velvet of black colour or any other colour in contrast with that of the wool.

5.2 **Scale** — graduated in centimetres and millimetres.

6. PREPARATION OF TEST SPECIMEN

6.1 The diameter of the staple shall be about 10 mm, if larger, it shall be reduced to this size.

7. PROCEDURE

7.1 Place the scale on the velvet board along the length of the board. Take a staple and place it along the scale on the velvet board. Gently straighten the staple if it is in a bent state. Remove the scale without disturbing the staple on the board and carefully adjust the zero mark of the scale with the base of the staple. Read the length of the staple to the nearest 5 mm. In case the staple does not have a clearly defined tip, that is, if it has tapering tip, take the reading from the base of the staple to the point on the tapering tip where the majority of the fibres end (*see* Fig. 2).

7.2 Similarly measure other test specimens. Test at least 100 test specimens.

8. CALCULATIONS

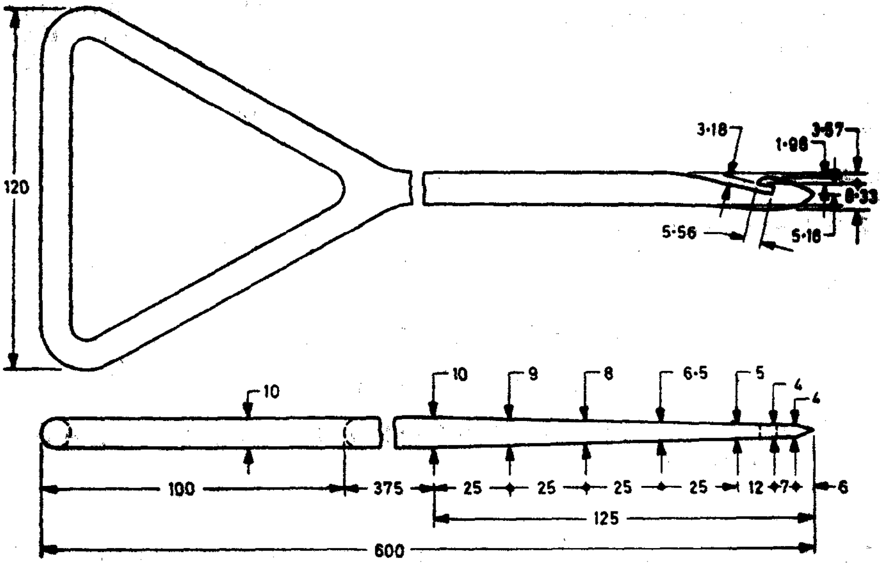
8.1 Calculate the average staple length from the individual measurements obtained as in **7.1** and **7.2** correct to 1 mm.

8.2 If required, calculate the standard deviation and coefficient of variation.

9. REPORT

9.1 The report shall include the following information:

a) Average staple length, and
b) Number of observations made.



All dimensions in millimetres.

FIG. 1 SAMPLING TOOL

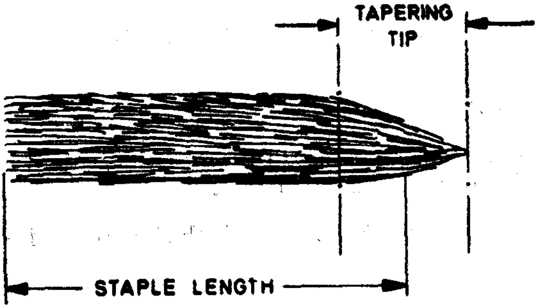


FIG. 2 WOOL STAPLE

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ON

PHYSICAL METHODS OF TEST FOR WOOL TEXTILES

IS:	
681-1964	Methods for determination of universal count of woollen and worsted yarn
744-1966	Method for determination of wool fibre diameter-projection microscope method (*first revision*)
832-1964	Method for determination of twist in yarn
1348-1971	Method for determination of kemp content of raw wool (*first revision*)
1377-1971	Method for determination of mean fibre length of wool (*first revision*)
1670-1970	Method for determination of breaking load, elongation at break and tenacity of yarns (*first revision*)
1954-1969	Methods for determination of length and width of fabrics (*first revision*)
1963-1969	Methods for determination of threads per decimetre in woven fabrics (*first revision*)
1964-1970	Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*)
1966-1961	Methods for determination of bursting strength of woven and knitted fabrics
1969-1968	Method for determination of breaking load and elongation at break of woven textile fabrics (*first revision*)
2702-1965	Method for determination of thermal resistance of textile fabrics-guarded hot-plate method
2899-1965	Method for determination of percentage of medullated fibres in wool
3442-1966	Method for determination of crimp and count of yarn removed from fabrics
4681-1968	Method for determination of wrinkle recovery of fabrics (by measuring crease recovery angle)
4902-1968	Method for determination of correct invoice weight and moisture content of woollen and worsted yarns
6124-1971	Method for determination of crimp in wool

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